

WHAT IS CLAIMED IS:

1. A wireless system comprising:
  - a memory;
  - a processor coupled to the memory, the processor to allocate a first portion of a transmit opportunity for an initial data burst and to allocate a second portion of the transmit opportunity for other operations including retries.
2. The wireless system of claim 1 wherein the wireless system allocates the second portion of the transmit opportunity to retry any failed packets of the initial data burst, if necessary.
3. The wireless system of claim 1 wherein the other operations are one or more selected from the group comprising:
  - retry one or more packets in the initial data burst that failed, if any packets failed;
  - transmit another initial data burst of packets if there is sufficient time in the transmit opportunity;
  - release control of a channel back to a channel access controller; and
  - reallocate a first sub-portion of the second portion for a second initial data burst and a remainder of the second portion for other operations.

4. The wireless system of claim 1 wherein the wireless system is adapted to allocate the first portion and the second portion based upon one or more detected criteria.

5. The wireless system of claim 1 wherein the wireless system is adapted to allocate the first portion and the second portion based upon a detected channel condition.

6. The wireless system of claim 5 wherein the detected channel condition is selected from the group comprising:

- received signal strength;
- detected packet errors or failures;
- received bit error rate;
- measured packet failure; and
- other indicia of the probability of packet failure.

7. The wireless system of claim 1 wherein the wireless system is adapted to further to calculate an upper bound for the initial data burst, and the wireless system to transmit packets of the initial data burst up to the upper bound.

8. The wireless system of claim 7 wherein the wireless system is further adapted to interrupt or stop the transmission of packets of the initial data burst

when the upper bound is met, and then transmit any retries, if necessary, within the same transmit opportunity.

9. The wireless system of claim 1, wherein the wireless system further comprises an antenna, a transceiver coupled to the antenna and to the processor.

10. A wireless system comprising:

a memory; and

a processor, the processor to estimate a number of packet retries for a data burst based upon one or more detected criteria, the wireless system to reserve a portion of a transmit opportunity for the estimated retries and then to transmit the data burst and any necessary retries within the same transmit opportunity.

11. The wireless system of claim 10 wherein the wireless system further comprises:

a transceiver coupled to the processor; and

an antenna coupled to the transceiver.

12. The wireless system of claim 10 wherein the processor to estimate the number of packet retries based upon one or more of a measured probability of packet error and a probability distribution.

13. A wireless system comprising:

an antenna;

a transceiver coupled to the antenna;

a processor coupled to the transceiver;

flash memory coupled to the processor, the wireless system to allocate a first portion of a transmit opportunity for an initial data burst and to allocate a second portion of the transmit opportunity for other operations including retries.

14. The wireless system of claim 13 wherein the wireless system allocates the second portion of the transmit opportunity to retry any failed packets of the initial data burst, if necessary, wherein the initial data burst and the retries are transmitted in the same transmit opportunity.

15. A wireless system comprising:

a processor, the processor adapted to calculate a probability of packet failure, to calculate an expected maximum number of retries based on the calculated probability of packet failure and a probability distribution, and to reserve a portion of a transmit opportunity for retries based upon the expected number of retries.

16. The wireless system of claim 15 wherein the processor to calculate an upper bound for the initial data burst based upon the expected maximum number of retries and the size of the transmit opportunity.

17. The wireless system of claim 15 wherein the probability distribution comprises a Binomial distribution.

18. A method comprising:  
receiving permission to transmit information during a transmit opportunity;  
allocating a first portion of the transmit opportunity for an initial data burst ;  
allocating a second portion of the transmit opportunity for other operations including retries.

19. The method of claim 18 wherein the allocating the first and second portions being based upon a detected criteria.

20. The method of claim 18 wherein the allocating of the first and second portions being based upon a detected channel condition.

21. The method of claim 20 wherein the channel condition is selected from the group comprising:  
received signal strength;  
detected packet errors or failures;

received bit error rate;  
measured packet failure; and  
other indicia of the probability of packet failure.

22. The method of claim 18 wherein the other operations are one or more selected from the group comprising:

wherein the other operations comprise one or more of the following:

retrying one or more packets in the initial data burst that failed, if any packets failed;

transmitting another initial data burst of packets, if retries are unnecessary, or if there is sufficient time in the transmit opportunity after transmitting any retries;

releasing control of a channel back to a channel access controller; and

reallocating a first sub-portion of the second portion for a second initial data burst and a remainder of the second portion for other operations.

23. The method of claim 18 wherein the allocating is performed based upon a detected criteria, the method comprising:

calculating an upper bound for the initial data burst, defining a maximum size for the first portion; and

transmitting packets of the initial data burst up to the upper bound;

interrupting or stopping the transmission of the initial data burst;

transmitting any retries of the initial data burst, the initial data burst and the retries for the data burst being transmitted in the same transmit opportunity.

24. The method of claim 18 wherein the receiving permission to transmit information during a transmit opportunity comprises at least one of:

requesting permission to transmit data over a channel; and

receiving permission to transmit data over the channel.

25. The method of claim 18 wherein the receiving permission to transmit information during a transmit opportunity comprises requesting and receiving permission to transmit during a scheduled transmit opportunity.

26. A method of allocating time during a transmit opportunity, the method comprising:

receiving permission to transmit information during a transmit opportunity;

allocating a first portion of the transmit opportunity for an initial data burst based upon a detected channel condition;

allocating a remaining portion of the transmit opportunity for other operations, the other operations to be determined based upon the success or failure of the transmission of packets in the initial data burst.

27. The method of claim 26 wherein the other operations include one or more selected from the group comprising:

retrying one or more packets in the initial data burst that failed, if any packets failed;

transmitting another initial data burst of packets, if retries are unnecessary, or if there is sufficient time in the transmit opportunity after transmitting any retries;

releasing control of a channel back to a channel access controller; and  
reallocating a first sub-portion of the second portion for a second initial data burst and a remainder of the second portion for other operations.

28. A method of allocating time during a transmit opportunity comprising:  
detecting a channel quality or other criteria; and  
reserving a portion of a transmit opportunity for expected retries based upon the detected channel quality or other criteria.

29. The method of claim 28 wherein the detecting is selected from the group comprising:

detecting a bit error rate;

detecting packet failure or a packet failure rate;

detecting packet retries;

detecting a signal-to-noise ratio;

detecting a received signal strength.



30. A method comprising:

- receiving permission to transmit information during a transmit opportunity;
- detecting a criteria;
- selecting one of the following transmit modes based upon the detected criteria:
  - a) allocating a first portion of the transmit opportunity for an initial data burst and a second portion of the transmit opportunity for retries;
  - b) not allocating a specific portion of the transmit opportunity for retries; and
- transmitting packets according to the selected transmit mode.

31. The method of claim 30 wherein the criteria comprises a Quality of Service (QoS) field or QoS value or other value.

32. The method of claim 30 wherein transmit mode a) relies upon one or more subsequent transmit opportunities or channel accesses to transmit one or more retries associated with the initial data burst.

33. An article comprising:

- a storage medium;
- said storage medium including stored thereon instructions that, when executed by a processor, result in:

receiving permission to transmit information during a transmit opportunity;  
detecting a criteria;  
allocating a first portion of the transmit opportunity for an initial data burst  
and a second portion of the transmit opportunity for other operations including  
retries based upon the detected criteria.

34. The article of claim 33 wherein the instructions resulting in detecting a  
criteria comprise detecting a channel condition.

35. A method comprising:  
receiving permission to transmit information during a transmit opportunity;  
detecting one or more criteria; and  
selecting one of the following transmit modes based upon the detected  
criteria:

a) a transmit mode in which packets are transmitted so as to  
decrease latency for at least some of the packets; and

b) a transmit mode in which packets are transmitted so as to  
increase data throughput.

36. The method of claim 35 wherein the criteria comprises a Quality of  
Service (QoS) field or QoS value or other value.

37. The method of claim 35 wherein transmit mode a) comprises reserving a specific portion of a transmit opportunity for retries, and transmit mode b) comprises transmitting as many packets as possible during the transmit opportunity without specifically reserving a portion of the transmit opportunity for retries.